of it is very generally present. It doubtless has effects beyond itself. It may be upon the patient or on friends. The former comes to estimate the severity of her case by her habitual descriptions of it; and as these grow in strength, her consciousness of the hopelessness of her condition is increased. The physician and friends are in great danger of a like influence, until at length the case is abandoned, or, what most frequently happens, it passes into the current quackery, and drifts into whatever direction such an agency, or mere accident, may impel it."

There may be discomfort, depression, even pain, attendant upon the bed case. Motion is so intolerable often that it is rarely attempted, except under the strongest motives from the physician and friends. Continued rest diminishes the power of the muscular system—disturbs the relations between voluntary muscles and the will—so that in time there is not only pain on attempting motion, but absolute want of ability to move. Nay, constant lying, certain positions, and accidental but unnatural action of muscles, may, and often do, produce various deformities—the very distortions of spine and limbs to prevent or relieve which rest in the recumbent position was enforced. The nervous system of organic life, and that under the dominion of the will, fall into the condition of their organs, and from disuse become disturbed and enfeebled, and their operations perverted.

The "bed case" may be confounded, by the careless observer, with hysteria, neuralgia, consumption, irritable uterus, disease of the heart or of the spine, palsy, etc. From all of these, however, it may be distinguished by a careful analysis of the morbid phenomena present, in order that we may determine their true import. One striking feature of the bed case, by which alone it may in general be distinguished, is the complete change which sometimes the character of the symptoms and their location suddenly undergo, while in other cases there will be a continuance, a persistence, a neither getting better nor worse, in the more prominent of the simulative phenomena. They will continue the same in character, location, and intensity from day to day, for weeks, and sometimes months and years.

To describe the pathology and lay down the treatment of the disease alluded to—which had no name until Dr. C. gave to it that of bed case—is the object of the essay before us, an essay we would recommend to the earnest attention of every practitioner, old as well as young. It is replete with important truths, a general recognition of which would, we are persuaded, be the means of causing many a patient long bedridden to rise upon her feet, prepared and able to fulfil properly her allotted part in the task of life. D. F. C.

---

ART. XXIII.—*An Essay on the Treatment of Phthisis by the Chlorate of Potash, with observations on Oxygen as a Therapeutic Agent, and the Exposition of a New Theory of the Formation of Ozone.* Read before the American Medical Association, at its Thirteenth Annual Session, held at New Haven, June, 1860. By E. J. FOUNTAIN, A.M., M.D., of Davenport, Iowa. 8vo. pp. 24. New York, 1860.

THE above essay was presented by its author as a voluntary contribution to the Section on Practical Medicine and Obstetrics of the American Medical Association, at its session of the present year. By a vote of the Section it was referred back to Dr. F., "with the request that he pursue his investigations and report at the next session of the Association."

By the publication of the essay its author believes that he shall most effectually carry out the wishes of the Association in reference to it. He hopes in this manner to "attract the attention of the profession to the investigation of the value of oxygen in its diversified application as a remedial agent." The essay Dr. F. submits, "not as a conclusive demonstration of any theory or practice, but as containing suggestions which may lead others to test their value, and thus to a prompt investigation in a new direction." He solicits contributions from his professional brethren on the subjects of which the essay treats, in order that sufficient materials may be obtained for a satisfactory report to the next session of the American Medical Association.

In a paper published in the *New York Journal of Medicine*, for July, 1859, Dr. F. called the attention of physicians to the importance of meeting a frequently occurring indication arising in the progress of many diseases from *imperfect aëration of the blood*, and detailed some cases in illustration of the fact that in the *chlorate of potash* we have an agent fully capable of fulfilling such indication. He, at the same time, endeavoured "to establish the theory, that in many instances where the blood is not deficient in its usual supply of oxygen absorption of many organic products may be promoted by rendering the blood more highly arterialized through the agency of the chlorate of potash. Among these were included tubercular deposits, as these were believed to be the result of an imperfect elimination from the system of the products of organic decay of the tissues of the body, and are composed principally of protein compounds, which are rendered soluble by the addition of one or two equivalents of oxygen, converting them into the deutoxide or tritoxide, and permits their absorption by endosmosis into the adjoining vessels; it was suggested that the chlorate of potash might be found a valuable remedy by supplying the blood with an excess of oxygen sufficient for this purpose."

This latter suggestion is further enforced in the essay before us. In illustration of the views advanced the history of three cases are given; from these cases, and other observations elsewhere recorded, Dr. F. deduces the following conclusions:—

"1. The chlorate of potash can be given in large doses every day, for a long period, without injury.

"2. It aids the function of respiration by supplying the blood with oxygen.

"3. It operates as a natural *tonic*, *alterative*, and *blood depurant*, by increasing the supply of that element which is the most active agent of nature in the chemical changes which take place in the laboratory of the human system.

"I will now add, that in the practical application of these principles, it is my belief, which may or may not be confirmed by the experience of others, that it is a peculiarly appropriate remedy for the *early stages of phthisis*, by which the resolution and absorption of incipient tubercles may be effected, and their further deposit arrested. Even where the disease has progressed to the second stage I have found patients derive great benefit from the use of this remedy; more, indeed, than from all others, single or combined. I cannot, however, expect it to be of permanent benefit, only in the early stages of the disease, before there is any disorganization of the lungs or suppuration of the tubercles. To all who are labouring under the symptoms of this disease, before it has progressed to such an extent, I would recommend the liberal and constant use of the chlorate of potash, aided by appropriate hygienic treatment, in which exercise and pure air hold the rank of first importance. Half an ounce daily is the quantity I usually give when I wish to produce a decided effect for any purpose, and this can be taken certainly for many weeks with impunity; but, when I have occasion to give it for a long time, I find three drachms a day can be depended upon as sufficient in most cases. After all symptoms of phthisis have been arrested by this treatment, I would recommend as a daily beverage a trial of liquids artificially charged with oxygen gas."

We shall be gratified if the anticipations of Dr. F., in respect to the remedial powers of the chlorate of potash, when resorted to in the earlier stages of pulmonary tuberculosis, shall be realized by the result of further experience. As to his views in regard to its mode of action in the dispersion of existing tubercular deposits, and the prevention of any deposit subsequently, we have nothing to say at present. It is scarcely worth our while to enter upon an examination of these views until it shall be ascertained whether any confidence is to be placed in the curative powers of the chlorate of potash in phthisis. "An opinion of a remedy," remarks Sprengell, in his Commentary on Celsus, edition of 1708 "without that knowledge of its powers which cometh from experience, is devoid of any value; for it is only by observing how it acteth when used against a disease that we can come to know surely whether it hath any curative power."

For an exposition of Dr. Fountain's theory of the formation of *ozone* we must refer our readers to the work itself. He confidently affirms that "ozone is simply oxygen in a nascent condition, produced naturally by electrolytic decomposition of the vapour of water in the atmosphere." D. F. C.

---

ART. XXIV.—*On the Reparative Process in Human Tendons after Subcutaneous Division for the Cure of Deformities; with an account of the appearances presented in fifteen post-mortem examinations in the human subject; also a series of experiments on rabbits, and a resumé of the English and foreign literature of the subject.* Illustrated by seven lithograph plates and a series of woodcuts. By WILLIAM ADAMS, F. R. C. S., Surgeon to the Royal Orthopædic Hospital, etc. etc. London: John Churchill, 1860. 8vo. p. 175.

As may be perceived from its title, this monograph is based upon a somewhat extensive range of practical observations. Its subject is of interest, not only as presenting the simplest conditions of the process of healing in the living tissues, but also as bearing upon the surgical treatment of certain deformities.

After detailing the appearances observed in thirteen cases of tenotomy, in most of which several tendons had been divided, in some of which the same tendon had been divided more than once at different points, and in which the ages of the patients as well as the periods which had elapsed between the operations and the dissections varied greatly, Mr. Adams gives a general summary of the views to which his researches have led him.

Immediately after section of the tendo-Achillis is performed, the divided ends are separated, the extent of this separation depending upon the amount of contraction of the muscular belly, and upon the degree to which the previous malposition is corrected by the surgeon. The sheath of the tendon is not severed in cases where the operation is subcutaneous, but yields before the edge of the knife; and even where an open wound is made, it does not retract with the tendon, being prevented from doing so by its relations to the surrounding areolar tissue. Mr. Adams places a high estimate upon the importance of the sheath in the formation of the connecting bond of new material; differing in this respect from Mr. Paget, who ignores it altogether. He, however, agrees with Mr. Paget, in opposition to the French and German authorities, in considering the occurrence of inflammation or of effusion of blood as a hindrance, instead of an aid to the reparative process.

This process is begun by an increase in the vascularity of the sheath, the surrounding areolar tissue and fat becoming also injected, but only incidentally. Along with this condition there occurs an effusion of nucleated blastema into the meshes of the sheath, as described by Mr. Paget. Subsequently, capillary vessels are formed in this new material, and the nuclei assume an elongated shape; the author is inclined to believe in the development of fibres from the latter elements. The new tendon never acquires the shining opacity of the old, nor do its fibres ever become readily separable from one another; its deep surface is more or less adherent to the subjacent tissues, and remains so persistently.

No part is taken in this process by the cut ends of the old tendon. Preparatory to their joining with the new material, they become rounded, a little enlarged and softened, and tend to split; a very fine dovetailing of the new and old tissue takes place, and ultimately the enlargement at the point of juncture disappears. In the human subject, the re-formation of a separable sheath is less plainly demonstrable than in the rabbit.

Mr. Adams strongly opposes the *linear cicatrix* theory, advocated by Tamplin, Brodhurst, Coote, and others. According to these gentlemen, the efficacy of the orthopædic section of tendons is altogether due to an alteration in the sphere of muscular contraction; the new material interposed between the cut